

What is claimed is:

1. A magnetic ceramic composition for microwave application, comprising:

5 Yttrium iron garnet (YIG, $\text{Y}_3\text{Fe}_5\text{O}_{12}$) ranging from about 95 mol % to about 99.95 mol %; and

silicon oxide (SiO_2) ranging from about 0.05 mol % to about 5 mol %.

10 2. A method for preparing a magnetic ceramic composition for microwave application, comprising the steps of:

a) mixing ferric oxide (Fe_2O_3) and yttrium oxide (Y_2O_3) in the ratio of 5:3 and calcining the mixture;

15 b) adding silicon oxide (SiO_2) ranging from about 0.05 mol % to about 5 mol % to the calcined mixture and mixing the mixture; and

c) molding and sintering the mixture,

20 wherein the magnetic ceramic composition has a composition of $(100-x)\text{Y}_3\text{Fe}_5\text{O}_{12} + x\text{SiO}_2$ ($0.05 \leq x \leq 5 \text{ mol \%}$).

3. The method as recited in claim 2, wherein the calcination is performed at a temperature ranging from about 1150°C to 1250°C for 5 to 7 hours.

25 4. The method as recited in claim 2, wherein the sintering is performed at a temperature ranging from about

1300°C to about 1450°C for 3 to 5 hours.

5. The method as recited in claim 2, wherein the amount of the silicon oxide ranges from about 0.5 mol % to about 1 mol %.